TRIP REPORT FOR THE
CAR-MOR METAL COMPANY SITE
SOIL SAMPLING EVENT
PHILADELPHIA, PENNSYLVANIA

Prepared for

U.S. Environmental Protection Agency
1650 Arch Street
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Prepared by

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Project Manager	START Site Assessment Manager

CONTENTS

1.0 INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S3-05-02, Technical Direction Document (TDD) No. E33-024-08-09-001, U.S. Environmental Protection Agency (EPA) Region 3 tasked Tetra Tech EM Inc. (Tetra Tech), to conduct a site inspection (SI) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in support of site assessment activities conducted at the Car-Mor Metal Company site located at 2320 Gaul Street in Philadelphia, Pennsylvania, 19125. The data collected during the SI will be used to determine the need for additional assessment or response activities at the site or in the surrounding area.

This trip report provides site background information in Section 2.0, describes investigation activities in Section 3.0 and summarizes the analytical data and provides conclusions in Section 4.0. All references cited in this report are listed in Section 5.0. All figures are included in Appendix A and a copy of the logbook documentation is provided in Appendix B.

2.0 SITE BACKGROUND

Former potential lead smelter sites nationwide were identified in an April 2001 article published in the American Journal of Public Health by Eckel, and others (Eckel study) (Reference [Ref.] 1). The majority of these former potential lead smelters operated prior to 1964 and closed before the current environmental regulations were instituted. As part of the Eckel study, soil samples were collected from several of the identified former lead smelter properties. Results from the analysis of these soil samples indicated that concentrations of lead exceeded EPA's soil screening level for lead in residential soils. The results of the Eckel study indicate that the air disposition of lead into soils from former smelter operations may present an ongoing public health concern due to exposure of residential populations, especially children to soils containing elevated concentrations of lead (Refs. 1, 2, and 3). One of the sites identified in the Eckel study was the Car-Mor Metal Company site formerly located 2320 Gaul Street in Philadelphia, Pennsylvania. Each former smelter property was given a number in Eckel's study. The Eckel study number for this site is 307 (Ref. 1).

The geographic coordinates of the former Car-Mor Metal Company facility are 39.9768° north latitude and 75.1167° west longitude on the Philadelphia and Camden, Pennsylvania – New Jersey Quadrangle, 7.5 minute series, United States Geological Survey topographic map (see Appendix A, Figure 1). The site is identified in EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database as the Car-Mor Metal Company site, CERCLIS ID Number PAN000306202 (Ref. 4).

Tetra Tech completed a windshield reconnaissance of the site and surrounding area on April 8, 2009. A large warehouse type structure appeared to encompass the entire former smelter site. As a result of the site being completely developed with a structure, potential soil sample collection locations were not identified on the former smelter site. The property is located in a mixed land use area with residential properties interspersed with small commercial type structures. Based on the close proximity to the former smelter site, Tetra Tech recommended a soil sampling event be conducted at the adjacent residential properties.

3.0 INVESTIGATION ACTIVITIES

On May 1, 2009, Tetra Tech collected in situ and ex situ soil samples from four adjacent residential properties. The samples were analyzed for lead concentration using a Niton model XLt portable x-ray fluorescence (XRF) analyzer, calibrated to analyze bulk soil samples using a $cadmium_{109}$ radioactive source. XRF analysis was performed in accordance with EPA Emergency Response Team (ERT) Standard Operating Procedure (SOP) No. 1707, "X-MET 880 Field Portable X-Ray Fluorescence Operating Procedures" (Ref. 5).

Tetra Tech collected in situ soil samples from five randomly selected locations to the north, east and west of the dwelling located at [redacted] East Gordon Street, three randomly selected locations to the east of the dwelling located at [redacted] Cedar Street, two randomly selected locations to the west of the dwelling located at [redacted] East Gordon Street and one randomly selected location to the west of the dwelling located at [redacted] East Gordon Street (see Appendix B, Logbook Documentation). The in situ lead concentrations recorded ranged from 140.0 parts per million (ppm) to 1,000.0 ppm. To confirm the results of the in situ readings, Tetra Tech collected soil from three locations for ex situ XRF analysis. The samples were collected from 0 to 6 inches

below the ground surface. Each sample was placed in a plastic bag and transported to the Tetra Tech Boothwyn office for XRF sample preparation and analysis.

The ex situ sample preparation steps included:

- Placing a 50-gram aliquot of homogenized soil in a labeled baking cup
- Placing baking cup in oven for 2 hours at 350^{o} F
- Screening the dried, 50-gram sample through a #10 mesh sieve (60 micron)
- Placing sieved sample in labeled XRF analysis cup
- Placing clean paper over sample in cup, place cotton ball over paper, and snap on the sample cup cover

Each XRF sample cup was placed into the portable XRF for analysis. Table 1 below summarizes the results, the sample locations are provided in Appendix A, Figure 3.

TABLE 1
XRF ANALYTICAL RESULTS SUMMARY

Sample ID	Location	Analyte	Result (ppm)
CM-01	Side yard to the east of [redacted] Cedar Street	Lead	315.0
CM-02	Rear yard to the west of [redacted] East Gordon Street	Lead	327.0
CM-03	Rear yard to the west of [redacted] East Gordon Street	Lead	1,080.0

Notes:
ppm = parts per million
XRF = X-Ray Fluorescence

4.0 ANALYTICAL RESULTS SUMMARY AND CONCLUSIONS

EPA has established a soil screening level (SSL) for lead in residential soils (400 ppm) and industrial soils (800 ppm) (Ref. 6). The SSL can be used as a guidance level to identify sites that may pose potential risk and warrant additional assessment. The SSL established for residential soil of 400 ppm is a risk-based concentration calculated for a bare soil child's play area and the level established for industrial soil is the risk-based concentration for a non-play area (Ref. 7). As shown in Table 1, the lead concentration recorded for ex situ sample CM-03 collected in the vicinity of [redacted] East York Street exceeded the industrial soil (non-play area) SSL. The lead concentrations recorded for ex situ samples CM-01 and CM-02 collected in the vicinity of [redacted]

East York Street did not exceed the industrial soil (non-play area) SSL. The three samples exceeded the residential (play area) SSL, with a maximum concentration detected of 1,080.0 ppm. The ex situ analytical results confirmed the results obtained during the in situ sampling, which indicated a maximum lead concentration in the vicinity of the former Car-Mor Metal Company site, of 1,000.0 ppm.

5.0 REFERENCES

1. Eckel, W.P., Rabinowitz, M.B., Foster, G.D. American Journal of Public Health. "Discovering Unrecognized Lead-Smelting Sites by Historical Methods". April 2001.

2. Pennsylvania Department of Health. Suspected Former Lead Smelter Sites: A Potential Risk Factor for Childhood Lead Poisoning. August 2004.

3. U.S. Environmental Protection Agency (EPA). Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. OSWER Directive 9355.4-12. July 14, 1994.

4. U.S. EPA. Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) database. On-Line Address: http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm

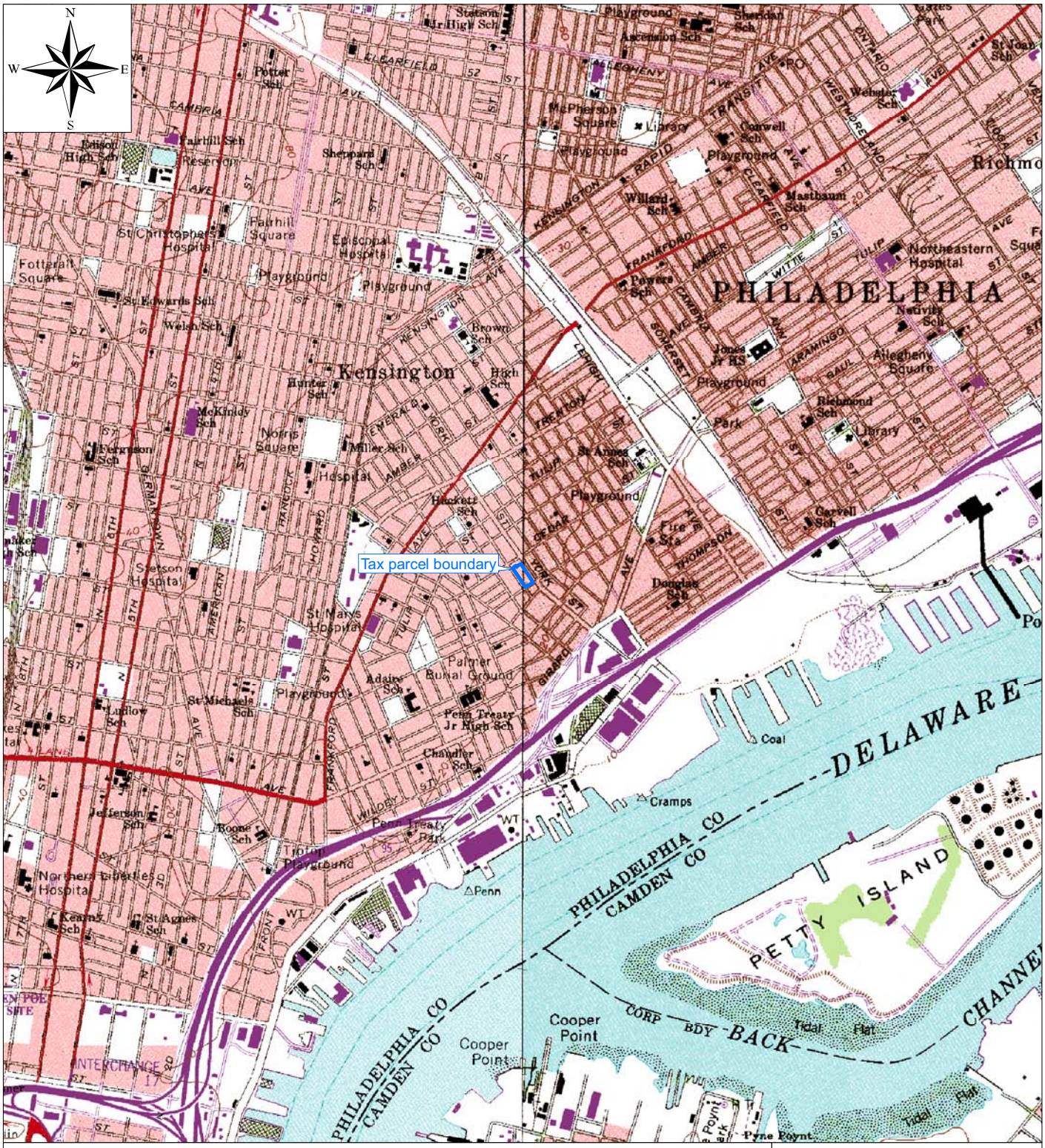
5. EPA. SOP 1707. "X-MET 880 Field Portable X-Ray Fluorescence Operating Procedures." ERT. Edison. December 1994.

6. EPA. Regional Screening Level Table Master April 2009. May 19, 2009. Available at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/master_sl_table_run_April2009.pdf

7. Agency for Toxic Substances & Disease Registry. Case Studies in Environmental Medicine (CSEM). "Lead Toxicity, What are the U.S. Standards for Lead Levels?". Available at: www.atsdr.cdc.gov/csem/lead/pb_standards2.html

APPENDIX A

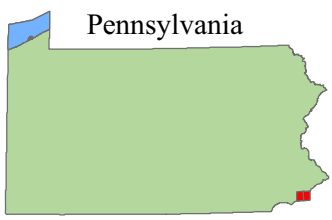
FIGURES



Source: Modified from USGS 7.5-Minute Series Topographic Quadrangles; Camden, New Jersey-Pennsylvania, 1967, Revised 1994; Philadelphia, Pennsylvania, 1967, Revised 1994

0 0.25 0.5 Miles

Quadrangle Location =



Car-Mor Metal Co. Site
Philadelphia, Pennsylvania

Figure 1
Site Location Map

TDD No. E33-024-08-09-001
EPA Contract No. EP-S3-05-02

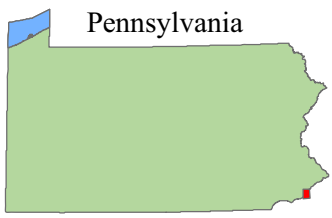
Map created on June 25, 2009
by [redacted] Tetra Tech EM Inc.

TETRA TECH

Source: Modified from Philadelphia Aerial Photography, Philadelphia City Planning Commission (PCPC), GIS Division, 2004.

0 50 100 Feet

Approximate Site Location =



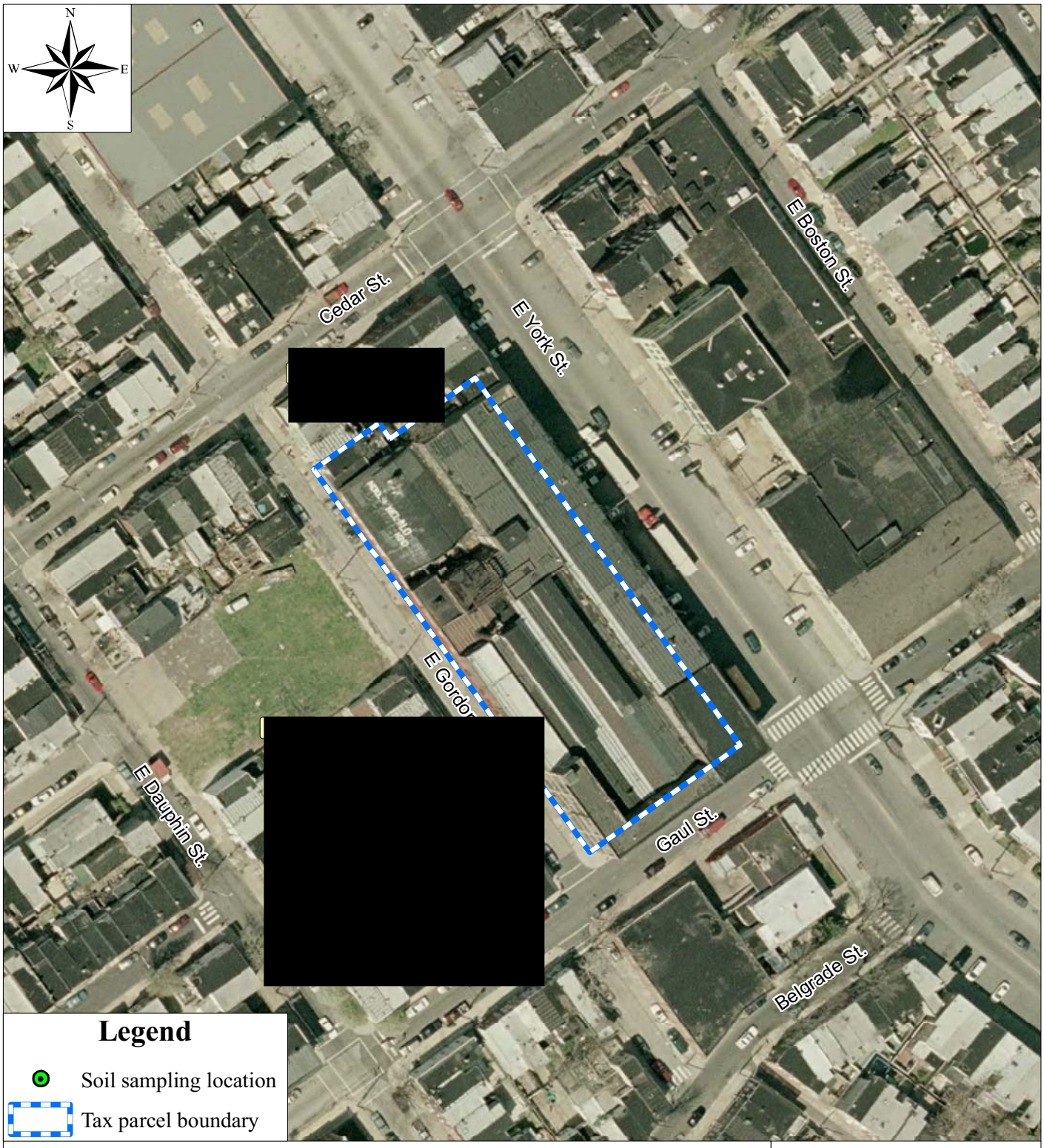
Car-Mor Metal Co. Site
Philadelphia, Pennsylvania

Figure 2
Site Layout Map

TDD No. E33-024-08-09-001
EPA Contract No. EP-S3-05-02

Map created on June 25, 2009
by [redacted] Tetra Tech EM Inc.

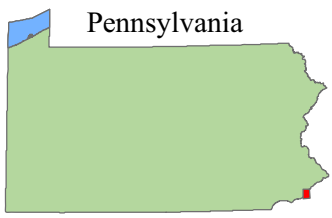
TETRA TECH



Source: Modified from Philadelphia Aerial Photography, Philadelphia City Planning Commission (PCPC), GIS Division, 2004.

0 50 100 Feet

Approximate Site Location =



Car-Mor Metal Co. Site
Philadelphia, Pennsylvania

Figure 3
Sampling Location Map

TDD No. E33-024-08-09-001
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Map created on June 25, 2009
by [redacted] Tetra Tech EM Inc.

TETRA TECH

APPENDIX B

LOGBOOK DOCUMENTATION

5-1-09 Car-Mor Metals Site

Friday, 55°F, overcast, light rain

[redacted] } Tetra Tech

1110 DD + BW arrive @ the location of the former car-Mor Metals site (int. of E. Gordon + Gaul Streets); meet with John Rajkowski – USEPA Region III.

1115 DD, BW + J. Rajkowski begin knocking on doors of surrounding residences in an effort to obtain access to their yards + collect readings/samples with XRF.

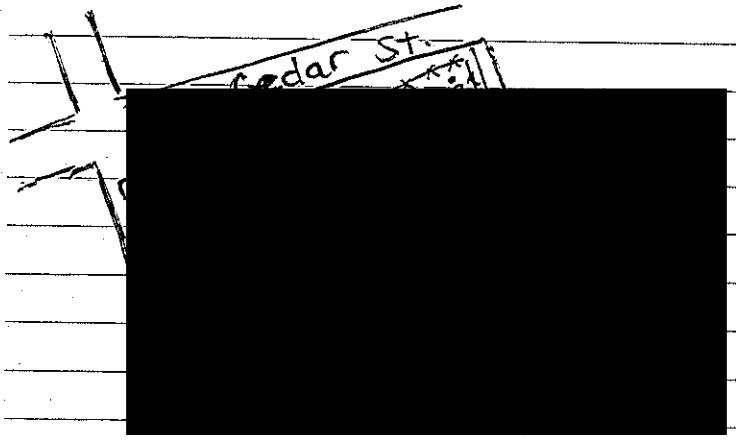
1120 First residence for insitu + exsitu sampling = [redacted] East Gordon St.

[redacted]

Location	XRF Reading (ppm)
1	140
2	200
3	236
4	181
5	190

5-1-09 Car-Mor Metals Site (Cont'd)

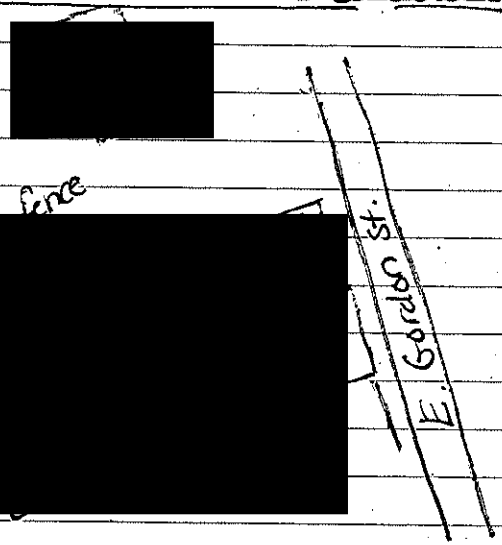
1135 Second residence for insitu + exsitu sampling/screening w/ XRF = [redacted] E. Gordon Street.



Location	XRF Reading (ppm)	Exsitu Sample
1	274	CM-01 @ 1142
2	208	N/A
3	250	N/A

1153 Third residence for insitu + exsitu sampling/screening w/ XRF = [redacted] East Gordon Street.

5-1-09 Car-Mor Metals Site (Cont'd)



Location	XRF Reading (ppm)	Exsitu Samples
1	370	CM-02 @ 1158
2	372	N/A
3	~~402~~ 1,000.00	CM-03 @ 1207

- Three discrete samples collected from 3 insitu reading locations for exsitu analysis:

Samples:	Time	Sampler:
CM-01	1142	DD
CM-02	1158	DD
CM-03	1207	DD

- all exsitu soil samples were collected in accordance with the SAP.

5-1-09 Car-Mar Metals Site (cont'd)
1220 DP + BW offsite.

Exsitu XRF Readings:

CM-01 = 315 ppm
CM-02 = 327 ppm
CM-03 = 1,080 ppm